AMENDMENTS

In the claims:

1. (Currently Amended) An ultrasonic imaging system capable of producing images of a target, said system comprising:

a housing;

a two-dimensional transducer array disposed on said housing;

a display unit disposed on said housing, the display unit defining a planar region, wherein said transducer array and said display unit are integrated with the housing, wherein said display unit lies in a plane that is substantially parallel to said two-dimensional transducer array; and

a beamformer disposed within said housing, said beamformer in communication with said two-dimensional transducer array, and generating an image corresponding to an image plane located below the plane of the display, wherein said image represents a portion of said image plane that is in substantial alignment with said planar region of said display unit ~~wherein said display unit displays the image plane as a projection onto the plane of the display~~.

2. (Previously Presented) The system of claim 1, further comprising a control to select the depth of the image plane.

3. (Previously Presented) The system of claim 2, wherein the control is a thumbwheel.

4. (Currently Amended) The system of claim1, wherein said image plane displayed on the display unit is scaled in a manner so that dimensions of the image correspond with dimensions of the target.

5. (Previously Presented) The system of claim 1, wherein the image is formed from a 3D data set by compounding a plurality of adjacent image planes, each image plane located at a different depth.

6. (Previously Presented) The system of claim1, wherein said system weighs less than about 5 pounds.

7. (Previously Presented) The system of claim 1, wherein said system weighs less than about 2 pounds.

8. (Previously Presented) The system of claim 1, wherein said housing has a volume of less than about 4 cubic inches.

9. (Previously Presented) The system of claim 1, wherein said housing has a volume of less than about 48 cubic inches.

10. (Canceled)

11. (Previously Presented) The system of claim 1, wherein said display unit is adjustably mounted to said housing; and

wherein the image plane is at an angle with respect to the two-dimensional transducer array.

12. (Previously Presented) The system of claim 11, wherein the image is derived from a 3D image set, and wherein an adjustment of the angle of said display unit controls the slice of the 3D image set to be displayed.

13. (Previously Presented) The system of claim 1, wherein said image displayed on said display unit is scaled in a manner whereby dimensions of said image corresponds with dimensions of the target.

14. (Previously Presented) The system of claim 1, wherein said image displayed on said display unit is scaled in a manner that magnifies the dimensions of the target.

15. (Previously Presented) The system of claim 14, wherein said system further comprises a user control unit, wherein said image displayed on said display unit is scaled in response to said user control unit.

16. (Canceled)

17. (Canceled)

18. (Previously Presented) The system of claim 1, wherein said image displayed on said display unit is a C-Mode image of tissue, whereby said displayed image is obtained in a plane substantially parallel or exactly parallel to the face of the transducer.

19. (Previously Presented) The system of claim 1, wherein said image displayed on said display unit is an animation comprising a plurality of images from image planes having different depths within a target.

20. (Previously Presented) The system of claim 1, wherein said image is formed by averaging at least two envelope detected images from multiple parallel planes, whereby appearance of speckle in the displayed image is reduced.

21. (Previously Presented) The system of claim 1, wherein said image represents estimated blood flow velocities encoded in color.

22. (Previously Presented) The system of claim 1, wherein said image depicts Power Doppler information.

23. (Previously Presented) The system of claim 1, wherein said image depicts tissue harmonic information.

24. (Previously Presented) The system of claim 1, wherein said image is formed by transmit-receiving compounding.

25. (Previously Presented) The system of claim 1, wherein said image is formed by receive only spatial compounding.

26. (Previously Presented) The system of claim 1, wherein said image is formed by frequency compounding.

27. (Previously Presented The system of claim 1, wherein said image depicts speckle pattern decorrelation over time as a means to identify tissue or blood motion.

28. (Currently Amended) The system of claim 1, wherein said two-dimensional transducer array transmits ultrasonic energy into ~~the~~ a target, wherein the ultrasonic energy transmitted uses one or more focused transmit beams.

29. (Previously Presented) The system of claim 1, wherein said two-dimensional transducer array transmits ultrasonic energy into a target, wherein the ultrasonic energy transmitted uses an unfocused transmit beam.

30. (Previously Presented) The system of claim 1, wherein said two-dimensional transducer array transmits ultrasonic energy into the target, and said two-dimensional transducer array being responsive for receiving ultrasonic echo signals from the target, said two-dimensional transducer array using a coded excitation scheme to increase the effective signal to noise ratio of received echo signals.

31. (Original) The system of claim 1, further comprising:

at least one passage in communication with said system, said system being adapted to correlate location of said passage with the target.

32. (Previously Presented) The system of claim 31, wherein a needle or tool inserted into said passage displayed on said display unit.

33. (Previously Presented) The system of claim 3 1, wherein at least one of said at least one passage is disposed on at least one of said transducer array and/or housing.

34. (Previously Presented) The system of claim 1, further comprising:

a marker unit, said marker unit adapted for placing one or more marks on a target.

35. (Previously Presented) The system of claim 1, wherein said two-dimensional transducer array is comprised at least in part of a piezoelectric material.

36. (Canceled)

37. (Canceled)

38. (Canceled)

39. (Canceled)

40. (Original) The system of claim 1, further comprising:

at least one removable cover, at least one said cover at least partially covering said housing.

41. (Original) The system of claim 40, further comprising:

at least one adhesive device, at least one said adhesive device at least partially disposed on said cover.

42. (Original) The system of claim 40, further comprising:

at least one intake disposed on said cover, said intake allowing access through said cover.

43. (Original) The system of claim 1, further comprising:

at least one adhesive device, at least one said adhesive device at least partially covering said housing.

44. (Original) The system of claim 1, further comprising:

at least one retaining device, at least one said retaining device at least partially disposed on said housing.

45. (Previously Presented) The system of claim 1, wherein at least one of said housing, display, and two-dimensional transducer array is curved.

46. (Previously Presented) A method of imaging a target to produce ultrasonic images, comprising the steps of

providing a housing;

providing a two-dimensional transducer array disposed on said housing, said two-dimensional transducer for transmitting ultrasonic energy into the target and receiving ultrasonic echo signals from the target;

beamforming said received echo signals to provide beamformed data;

processing said beamformed data to form a C-mode image; and

providing a display unit disposed on said housing, said display unit displaying said C-mode image.

47. (Original) The method of claim 46, wherein said beamfomer is disposed on said housing.

48. (Original) The system of claim 31, wherein the location correlation function is achieved by at least one intersection point indicator displayed on said display unit, at least one said intersection point indicator corresponds with at least one desired intersection point on the target and/or at least one image plane of the target.

49. (Previously Presented) A method of imaging a target to produce ultrasonic images comprising:

obtaining ultrasonic echo signals from a target using a two-dimensional transducer array;

generating a two-dimensional image for presentation on a display unit, wherein the display unit is collocated with and is in substantial alignment with the two-dimensional transducer; and

wherein the two-dimensional image corresponds to an image plane that is located underneath the two-dimensional transducer array and is in substantial alignment with the two-dimensional transducer array and the display unit.

50. (Previously Presented) The method of claim 49 wherein the image plane is substantially parallel to the two-dimensional transducer array.

51. (Previously Presented) The method of claim 49 wherein the image plane is located at a depth beneath the two-dimensional transducer array, where in the depth is selectable.

52. (Previously Presented) The method of claim 49 wherein the image plane is sloped with respect to the two-dimensional transducer array.

53. (Previously Presented) The method of claim 52 wherein the slope is selectable.

54. (Previously Presented) The method of claim 49 wherein the two-dimensional image is formed by averaging at least two envelope detected images from image planes at different depths, whereby appearance of speckle in the displayed image is reduced.

55. (Previously Presented) The method of claim 49 wherein the two-dimensional image comprises an animation of a plurality of images from image planes having different depths within a target.